

Applicant: Brian K. Campbell, *et al.*
U.S.S.N.: 10/675,002
Filing Date: 09/30/2003
EMC Docket No.: EMC-03-046

REMARKS

In response to the Office Action mailed March 9, 2006, applicants respectfully request reconsideration. In the Office Action, claims 1-20 were rejected. Claims 1-20 remain pending in this application.

Rejection Under 35 U.S.C. §103

Claims 1-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kagan (U.S. Patent No. 6,601,210) in view of Thiesfeld (U.S. Pub. No. 2003/0093633). This rejection is respectfully traversed, as there is no motivation in either reference for the combination suggested by the examiner and because, even if there was the requisite motivation, the combination does not teach the invention recited in claim 1-20. Applicant addresses each rejection below in the order presented by the examiner in the Office Action.

Regarding independent claim 6, the examiner takes the position that Kagan teaches everything recited in the claim, except for a *parity check device* to determine the validity of the data element. The examiner states that Thiesfeld teaches a *CRC checking device* for checking the validity of the data elements and that it would be obvious to improve the data path verification system, as disclosed by Thiesfeld. The examiner states, "[d]oing so would provide a very high probability that data is valid, and therefore the process validates the data itself."

Applicants are having difficulty understanding the rejection and the rationale for the suggested combination. As best as the rejection is understood, a comparison between the invention recited in independent claim 6 and the suggested combination is set forth to show that independent claim 6 is allowable over the combination suggested by the examiner.

Independent claim 6 recites an error checking system comprising:

- an input device for receiving a data element including parity information;
- a parity check device for checking the parity information of the data element to determine whether the data element is valid;
- a CRC generator coupled to the parity check device for generating a CRC for the data element; and

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an output device for transmitting the data element with the parity information and CRC to a downstream device over a transmission link;

wherein the parity check device is operative to output a corruption signal to the CRC generator if the parity check device determines that the data element is invalid, to instruct the CRC generator to corrupt the CRC generation for that data element.

Applicant asserts that Kagan does not teach what the examiner believes he teaches. The examiner states that Kagan teaches a parity check device (indicated by the examiner as element 32 in Fig. 1) which is operative to output a corruption signal to the CRC generator (indicated by the examiner as element 30 in Fig. 1) to instruct the CRC generator to corrupt the CRC generation for the data element. The examiner then refers applicants to Col. 1, line 62 – Col. 2, line 6. However, the portion of Kagan cited by the examiner describes the operation of output circuit 26 of switching device 20. None of the elements recited by the examiner in the rejection of claim 6 are included in output circuit 26. Regardless, even the portion of Kagan cited by the examiner does not teach what the examiner has relied upon it to teach.

The portion cited by the examiner states that a parity checker 40 computes the parity of a data packet received from switch 24. Routing logic 42 modifies the header of the data packet, to indicate the source and destination of the packet. CRC calculator 44 then computes a new CRC for the packet, and the packet is transmitted to the next device. While Kagan states that a discrepancy in the parity indicates that an internal error has occurred, he does nothing to corrupt the CRC computed in CRC calculator 44. Routing logic 42 modifies the header of every data packet that passes through it during the normal course of the transmission of the packets. He does not modify only packets having parity errors.

Accordingly, Kagan does not teach the invention recited in independent claim 6, specifically because he does not teach a parity check device which is operative to output a corruption signal to the CRC generator if the parity check device determines that the data element is invalid, to instruct the CRC generator to corrupt the CRC generation for that data element. There is no teaching or suggestion whatsoever in Kagan of such a feature.

The examiner relies on Thiesfeld for his teaching in Paragraph 0015, specifically for his teaching of calculating a CRC value of data at two points along a data path and comparing the CRC values to determine whether an error has occurred there between, or before the first CRC

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value was calculated. This does not provide the feature that is missing from Kagan, i.e., a parity check device which is operative to output a corruption signal to the CRC generator if the parity check device determines that the data element is invalid, to instruct the CRC generator to corrupt the CRC generation for that data element. There is no teaching or suggestion whatsoever in Thiesfeld of such a feature.

The examiner also states that the combination of Kagan and Thiesfeld "would provide means for distinguishing between internal device errors and external link errors, with reduced overhead...." Applicant questions how this might be relevant to the allowability of claim 6, as no such "feature" is recited in the claim.

Since neither Kagan nor Thiesfeld teach or suggest the invention recited in independent claim 6 and specifically, a parity check device which is operative to output a corruption signal to the CRC generator if the parity check device determines that the data element is invalid, to instruct the CRC generator to corrupt the CRC generation for that data element, the combination certainly cannot. Accordingly, independent claim 6 is allowable over the combination suggested by the examiner and the rejection of independent claim 6 should be withdrawn.

Claims 7-9 depend from independent claim 6 and are allowable for at least the same reasons as independent claim 6.

The examiner groups claims 10 and 14 together and states again states that Kagan teaches everything recited in the claim, except for a parity check device to determine the validity of the data element. Since independent claims 10 and 14 are different, applicants will address each claim separately.

Independent claim 10 recites a data transmission system comprising a transmission device for transmitting command data elements to a downstream device, the command data elements being generated and transmitted according to a predetermined protocol; and

a reception device for receiving response data elements from the downstream device, the reception device including a protocol checking device for checking at least one state of the response data elements to determine the validity of the at least one state of the response data elements.

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The examiner states that Kagan teaches a data transmission device (52) for transmitting data elements to a downstream device and a data reception device (56) for receiving data elements from the downstream device (i.e., Packet Out).

Applicant disagrees with the examiner's assessment of what Kagan teaches. The examiner takes the position that Packet Out is the downstream device and that device 56 is the data reception device. However, device 56 does not receive data elements from Packet Out. Fig. 2 clearly shows that Packet Out is the *output* of device 56. Therefore, Kagan does not teach a data transmission device for transmitting data elements to a downstream device and a data reception device for receiving data elements from the downstream device.

Furthermore, Kagan does not teach a reception device including a protocol checking device for checking at least one state of the response data elements to determine the validity of the at least one state of the response data elements. The examiner has failed to address this portion of independent claim 10 in the rejection.

Accordingly, since Kagan does not teach or suggest the invention recited in independent claim 10 and the element for which Thiesfeld is relied upon in the rejection is not even recited in independent claim 10, independent claim 10 is allowable over the combination suggested by the examiner and the rejection of independent claim 10 should be withdrawn.

Claims 11-13 depend from independent claim 10 and are allowable for at least the same reasons as independent claim 10.

Independent claim 14 recites a data transmission system comprising:

- a data transmission device for transmitting data elements to a downstream device;
- a data reception device for receiving data elements from the downstream device, the data reception device including:

- an input CRC checking device coupled to receive the data elements from the downstream device for checking the validity of received data elements based on a CRC associated with each received data element;

- a memory device coupled to the input CRC checking device for storing data elements received from the downstream device after the data elements have been processed by the input CRC checking device; and

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an output CRC checking device coupled to receive the data elements from the memory device for checking the validity of the data elements based on the CRC associated with each data element.

In addition to the data transmission device (52) for transmitting data elements to a downstream device and a data reception device (56) for receiving data elements from the downstream device (i.e., Packet Out), which, as discussed above Kagan *does not* teach, the examiner states that Kagan teaches an input CRC checking device (60) coupled to receive data elements from the downstream device (Packet Out), a memory device (34) coupled to the input CRC checking device (30) for storing data elements received from the downstream device after the data elements have been processed by the input CRC checking device, and an output CRC checking device (60) coupled to receive the data elements from the memory device (34).

First, *neither* CRC checking device taught by Kagan receives data elements from a downstream device to which data elements are transmitted by a data transmission device. CRC checking device 30 receives data from Packet In, which could be called "upstream" and CRC checking device 60 receives data from switch 24, which is also upstream from the device 60. Second, if CRC checking device 30 is called the "input" CRC checking device, then Kagan's memory 34 does not store data elements from the downstream device. Third, if the CRC checking device 60 of Kagan is called the "output" CRC checking device, it does not receive downstream data elements from the memory device 34.

That Thiesfeld teaches a CRC device adds nothing to what is taught by Kagan.

Accordingly, since Kagan does not teach or suggest the invention recited in independent claim 14 and Thiesfeld does not add anything relevant to Kagan, independent claim 14 is allowable over the combination suggested by the examiner and the rejection of independent claim 14 should be withdrawn.

Claims 15-20 depend from independent claim 14 and are allowable for at least the same reasons as independent claim 14.

The examiner states that independent claim 1 corresponds to claims 10 and 14 and is "analyzed as previously discussed in claims 10 and 14 above." Again, applicant disagrees with the examiner's assertion, as independent claim 1 is a method claim that is different from claims 10 and 14.

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Independent claim 1 recites an error checking method comprising:

- A. receiving a data element including parity information;
- B. performing a parity check of the data element to determine whether the data element is valid;
- C. generating a CRC for the data element; and
- D. corrupting the generation of the CRC if the parity check performed determines that the data element is invalid.

As discussed above regarding the allowability of independent claim 6, since neither Kagan nor Thiesfeld teach or suggest corrupting the generation of the CRC if the parity check performed determines that the data element is invalid, the combination of these references certainly cannot. Accordingly, independent claim 1 is allowable over the combination suggested by the examiner and the rejection of independent claim 1 should be withdrawn.

Claims 2-5 depend from independent claim 1 and are allowable for at least the same reasons as independent claim 1.

In view of the foregoing, applicants assert that claims 1-20 are allowable and that the application is in condition for allowance. Accordingly, applicants respectfully request favorable reconsideration.

In the event the Examiner deems personal contact desirable in the disposition of this case, the Examiner is invited to call the undersigned attorney at (508) 293-7835.

Please charge all fees occasioned by this submission to Deposit Account No. 05-0889.

Respectfully submitted,

Dated: _____

6/9/06



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